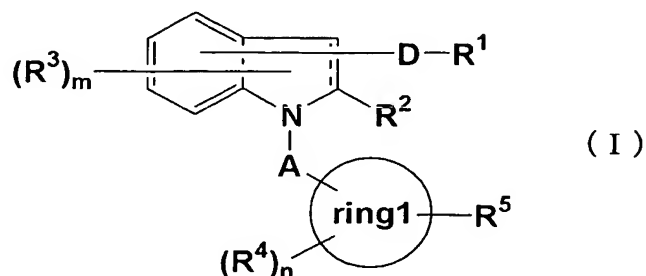


# CLAIMS

1. A indole derivative compound represented by formula (I)



wherein  $R^1$  represents (1)  $-COR^6$  or (2)  $-CH_2OR^7$ ;

$R^6$  represents (1) hydroxy, (2) C1-6 alkoxy, (3)  $-NR^8R^9$ , (4) C1-6 alkoxy substituted with phenyl or (5) C2-6 alkenyloxy;

$R^7$  represents (1) a hydrogen atom or (2) C2-6 acyl;

$R^8$  and  $R^9$  each independently represents (1) a hydrogen atom, (2) C1-6 alkyl or (3)  $-SO_2R^{10}$ ;

$R^{10}$  represents (1) C1-6 alkyl, (2) carbocycle-1 or (3) heterocycle-1;

D represents (1) a single bond, (2) C1-6 alkylene, (3) C2-6 alkenylene or (4)  $-O-(C1-6 alkylene)-$ ;

$R^2$  represents (1) C1-6 alkyl, (2) C1-6 alkoxy, (3) a halogen atom, (4) trihalomethyl, (5) cyano, (6) hydroxy or (7) a hydrogen atom;

$R^3$  and  $R^4$  each independently represents (1) a hydrogen atom, (2) C1-6 alkyl, (3) C1-6 alkoxy, (4) C1-6 alkyl substituted with C1-6 alkoxy, (5) a halogen atom, (6) nitro, (7)  $-NR^{11}R^{12}$ , (8) trihalomethyl, (9) cyano, (10) hydroxy or (11) trihalomethoxy;

$R^{11}$  and  $R^{12}$  each independently represents a hydrogen atom or C1-6 alkyl;

m represents an integer of 1 to 3 or 4;

n represents an integer of 1 to 4;

$R^5$  represents  $R^{5-1}$ ,  $R^{5-2}$ ,  $R^{5-3}$ ,  $R^{5-4}$ ,  $R^{5-5}$  or  $R^{5-6}$ ;

$R^{5-1}$  represents  $\text{---G---ring2}$ ;

$R^{5-2}$  represents (1) C1-15 alkyl may be substituted with 1-5 of an oxygen atom and/or a sulfur atom, in which the alkyl may be substituted with 1 to 12 substituent(s) selected from C1-6 alkoxy, a halogen atom, hydroxy, cyano, oxo and  $NR^{13}R^{14}$ , in which  $R^{13}$  and  $R^{14}$  each independently represents a hydrogen atom, C1-6 alkyl, C2-6 alkenyl, phenyl, benzoyl, naphthyl, phenyl substituted with C1-6 alkyl, or C1-6 alkyl substituted with phenyl or cyano, (2) C2-15 alkenyl may be substituted with 1-5 of an oxygen atom and/or a sulfur atom, in which the alkenyl may be substituted with 1 to 12 substituent(s) selected from C1-6 alkoxy, a halogen atom, hydroxy, cyano, oxo and  $NR^{13}R^{14}$ , in which  $R^{13}$  and  $R^{14}$  have the same meanings as described above, or (3) C2-15 alkynyl may be substituted with 1-5 of an oxygen

atom and/or a sulfur atom, in which the alkynyl may be substituted with 1 to 12 substituent(s) selected from C1-6 alkoxy, a halogen atom, hydroxy, cyano, oxo and  $\text{NR}^{13}\text{R}^{14}$ , in which  $\text{R}^{13}$  and  $\text{R}^{14}$  have the same meanings as described above, except a group represented by  $\text{R}^{5-3}$  and  $\text{R}^{5-5}$  described below;

$\text{R}^{5-3}$  represents (1) C1-6 alkyl substituted with C1-6 alkoxy or (2) C1-6 alkoxy substituted with C1-6 alkoxy;

$\text{R}^{5-4}$  represents (1) C1-15 alkyl which is substituted with one nitrogen atom and may be further substituted with 1 to 4 of a nitrogen atom, an oxygen atom and/or a sulfur atom, in which the alkyl may be substituted with 1 to 12 substituent(s) selected from C1-6 alkoxy, a halogen atom, hydroxy, cyano, oxo and  $\text{NR}^{15}\text{R}^{16}$ , in which  $\text{R}^{15}$  and  $\text{R}^{16}$  each independently represents a hydrogen atom, C1-6 alkyl, C2-6 alkenyl, phenyl, benzoyl, naphthyl, phenyl substituted with C1-6 alkyl, or C1-6 alkyl substituted with phenyl or cyano, and the substituted nitrogen atom may be substituted with (a) C1-6 alkyl, (b) C1-6 alkyl substituted with C1-6 alkoxy, (c) carbocycle-4, (d) heterocycle-4, (e) C1-6 alkyl substituted with carbocycle-4 or (f) C1-6 alkyl substituted with heterocycle-4, (2) C2-15 alkenyl which is substituted with one nitrogen atom and may be further substituted with 1 to 4 of a nitrogen atom, an oxygen atom and/or a sulfur atom, in which the alkenyl may be substituted with 1 to 12 substituent(s) selected from C1-6 alkoxy, a halogen atom, hydroxy, cyano, oxo and  $\text{NR}^{15}\text{R}^{16}$ , in which  $\text{R}^{15}$  and  $\text{R}^{16}$  have the same meanings as described above, and the substituted nitrogen atom may be substituted with (a) C1-6 alkyl, (b) C1-6 alkyl substituted with C1-6 alkoxy, (c) carbocycle-4, (d) heterocycle-4, (e) C1-6 alkyl substituted with carbocycle-4 or (f) C1-6 alkyl substituted with heterocycle-4) or (3) C2-15 alkynyl which is substituted with one nitrogen atom and may be further substituted with 1 to 4 of a nitrogen atom, an oxygen atom and/or a sulfur atom (in which the alkynyl may be substituted with 1 to 12 substituent(s) selected from C1-6 alkoxy, a halogen atom, hydroxy, cyano, oxo and  $\text{NR}^{15}\text{R}^{16}$ , in which  $\text{R}^{15}$  and  $\text{R}^{16}$  have the same meanings as described above, and the substituted nitrogen atom may be substituted with (a) C1-6 alkyl, (b) C1-6 alkyl substituted with C1-6 alkoxy, (c) carbocycle-4, (d) heterocycle-4, (e) C1-6 alkyl substituted with carbocycle-4 or (f) C1-6 alkyl substituted with heterocycle-4);

$\text{R}^{5-5}$  represents (1) C1-15 alkyl, (2) C1-15 alkoxy, (3) carboxyl, (4) C1-4 alkoxycarbonyl, (5) trihalomethyl or (6) C1-4 alkylthio;

$\text{R}^{5-6}$  represents (1) a halogen atom, (2) amino, (3) nitro, (4) cyano or (5) hydroxy;


G represents  $\text{G}^1$  or  $\text{G}^2$ ;


$\text{G}^1$  represents (1) a single bond, (2) C1-6 alkylene may be substituted with 1 to 2 oxygen atom and/or sulfur atom, in which the alkylene may be substituted with hydroxy or C1-4 alkoxy, (3) C2-6 alkenylene may be substituted with 1 to 2 oxygen atom and/or sulfur atom, in which the alkenylene may be substituted with hydroxy or C1-4 alkoxy, (4)  $-\text{CONR}^{17}-$ , (5)  $-\text{NR}^{18}\text{CO}-$ , (6)  $-\text{SO}_2\text{NR}^{19}-$ , (7)  $-\text{NR}^{20}\text{SO}_2-$  or (8)  $-\text{N}=\text{N}-$ ;

$\text{G}^2$  represents (1) C1-6 alkylene which is substituted with one nitrogen atom and may be further substituted with 1 to 2 of a nitrogen atom, an oxygen atom and/or a sulfur atom, in which the alkylene may be substituted with hydroxy or C1-4 alkoxy, and the

substituted nitrogen atom may be substituted with (a) C1-6 alkyl, (b) C1-6 alkyl substituted with C1-6 alkoxy, (c) carbocycle-5, (d) heterocycle-5, (e) C1-6 alkyl substituted with carbocycle-5 or (f) C1-6 alkyl substituted with heterocycle-5, or (2) C2-6 alkenylene which is substituted with one nitrogen atom and may be further substituted with 1 to 2 of a nitrogen atom, an oxygen atom and/or a sulfur atom, in which the alkenylene may be substituted with hydroxy or C1-4 alkoxy, and the substituted nitrogen atom may be substituted with (a) C1-6 alkyl, (b) C1-6 alkyl substituted with C1-6 alkoxy, (c) carbocycle-5, (d) heterocycle-5, (e) C1-6 alkyl substituted with carbocycle-5 or (f) C1-6 alkyl substituted with heterocycle-5;

$R^{17}$ ,  $R^{18}$ ,  $R^{19}$  and  $R^{20}$  each independently represents a hydrogen atom or C1-6 alkyl;

 represents (1) carbocycle-2 or (2) heterocycle-2;

 represents (1) carbocycle-3 or (2) heterocycle-3;

carbocycle-1, carbocycle-2, carbocycle-3, carbocycle-4 and carbocycle-5 each independently represents C3-15 mono-, bi- or tricyclic carboaryl which may be partially or fully saturated;

heterocycle-1, heterocycle-2, heterocycle-3, heterocycle-4 and heterocycle-5 each independently represents 3-15 membered mono-, bi- or tricyclic heteroaryl containing 1 to 5 of hetero atom which is selected from an oxygen atom, a nitrogen atom and a sulfur atom, which may be partially or fully saturated;

carbocycle-1, carbocycle-2, carbocycle-3, carbocycle-4, carbocycle-5, heterocycle-1, heterocycle-2, heterocycle-3, heterocycle-4 and heterocycle-5 each independently may be substituted with 1 to 5 of substituent(s) selected from (1) C1-6 alkyl, (2) C1-10 alkoxy, (3) C1-6 alkyl substituted with C1-6 alkoxy, (4) a halogen atom, (5) hydroxy, (6) trihalomethyl, (7) nitro, (8)  $-NR^{21}R^{22}$ , (9) phenyl, (10) phenoxy, (11) oxo, (12) C2-6 acyl, (13) cyano or (14)  $-SO_2R^{23}$ ;

$R^{21}$  and  $R^{22}$  each independently represents a hydrogen atom or C1-6 alkyl;

$R^{23}$  represents C1-6 alkyl;

A represents (1) carbonyl, (2)  $-S(O)_p-$ , (3)  $G^1$  or (4)  $G^2$ ;

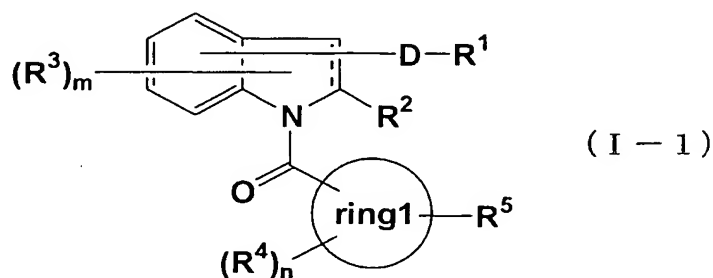
p represents 0 or an integer of 1 to 2;

----- represents (1) a single bond or (2) a double bond;

except for compounds of (1) and (2);

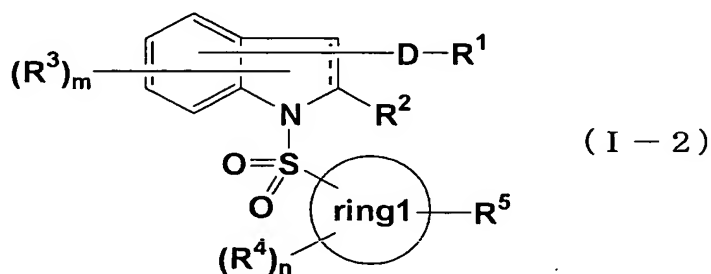
- (1) 2-(1-(4-benzyloxybenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester,
- (2) 2-(1-(4-phenylbenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester), a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

2. The indole derivative compound according to claim 1, which is represented by formula (I-1)



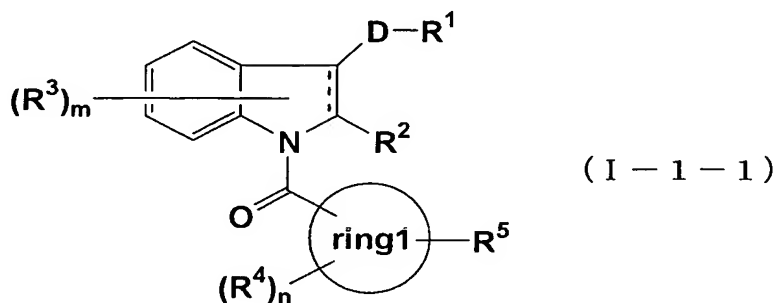
wherein all symbols have the same meanings as described in claim 1,  
a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

3. The indole derivative compound according to claim 1, which is represented by formula (I-2)



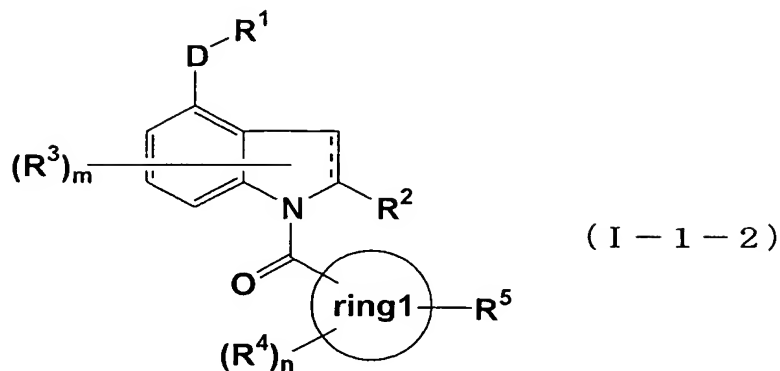
wherein all symbols have the same meanings as described in claim 1,  
a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

4. The indole derivative compound according to claim 2, which is represented by formula (I-1-1)



wherein all symbols have the same meanings as described in claim 1,  
a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

5. The indole derivative compound according to claim 2, which is represented by formula (I-1-2)



wherein all symbols have the same meanings as described in claim 1, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

6. The indole derivative compound according to claim 4, wherein, in formula (I-1-1), R² is (1) C1-6 alkyl, (2) C1-6 alkoxy, (3) a halogen atom, (4) trihalomethyl, (5) cyano or (6) hydroxy, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

7. The indole derivative compound according to claim 4, wherein, in formula (I-1-1), R² is a hydrogen atom, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

8. The indole derivative compound according to claim 6, wherein ring1 is benzene, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

9. The indole derivative compound according to claim 6, wherein R⁵ is R<sup>5-1</sup> and G is G², a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

10. The indole derivative compound according to claim 8, wherein R⁵ is R<sup>5-2</sup>, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

11. The indole derivative compound according to claim 8, wherein R⁵ is R<sup>5-4</sup>, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

12. The indole derivative compound according to claim 8, wherein (1) R⁵ is R<sup>5-1</sup> and G is G¹, or (2) R⁵ is R<sup>5-3</sup>, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

13. The indole derivative compound according to claim 12, which is selected from the group consisting of

- (1) (5-chloro-1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)benzoyl)-2-methyl-1H-indol-3-yl)acetic acid,
- (2) (1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)benzoyl)-2,5-dimethyl-1H-indol-3-yl)acetic acid,
- (3) (1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-3-methylbenzoyl)-5-fluoro-2-methyl-1H-indol-3-yl)acetic acid,
- (4) (1-(2-chloro-4-(((2S)-6-fluoro-4-methyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)benzoyl)-2,5-dimethyl-1H-indol-3-yl)acetic acid,
- (5) (5-chloro-1-(4-(((2S)-6-fluoro-4-methyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-3-methylbenzoyl)-2-methyl-1H-indol-3-yl)acetic acid,
- (6) (1-(4-(((2S)-6-fluoro-4-methyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2,5-dimethylbenzoyl)-2-methyl-1H-indol-3-yl)acetic acid,
- (7) (5-fluoro-1-(4-(((2S)-6-fluoro-4-methyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2,5-dimethylbenzoyl)-2-methyl-1H-indol-3-yl)acetic acid,
- (8) (1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-3-methylbenzoyl)-2,5-dimethyl-1H-indol-3-yl)acetic acid,
- (9) (1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2-methylbenzoyl)-5-fluoro-2-methyl-1H-indol-3-yl)acetic acid,
- (10) (5-chloro-1-(4-(((2S)-6-fluoro-4-methyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2,5-dimethylbenzoyl)-2-methyl-1H-indol-3-yl)acetic acid,
- (11) (1-(4-(((2S)-6-fluoro-4-methyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2,5-dimethylbenzoyl)-2,5-dimethyl-1H-indol-3-yl)acetic acid,
- (12) (1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2,5-dimethylbenzoyl)-5-fluoro-2-methyl-1H-indol-3-yl)acetic acid, and
- (13) (1-(4-(((2S)-4,6-dimethyl-3,4-dihydro-2H-1,4-benzoxazin-2-yl)methoxy)-2,5-dimethylbenzoyl)-2-methyl-1H-indol-3-yl)acetic acid,

a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

14. The indole derivative compound according to claim 6, wherein **ring1** is carbocycle-2, except for benzene, and  $R^5$  is  $R^{5-1}$ ,  $R^{5-2}$ ,  $R^{5-3}$  or  $R^{5-4}$ , a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

15. The indole derivative compound according to claim 6, wherein **ring1** is heterocycle-2 and  $R^5$  is  $R^{5-1}$ ,  $R^{5-2}$ ,  $R^{5-3}$  or  $R^{5-4}$ , a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

16. A CRTH2 receptor antagonist comprising the indole derivative compound according to claim 1, 2-(1-(4-benzyloxybenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, or 2-(1-(4-phenylbenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof as an active ingredient.

17. The CRTH2 receptor antagonist according to claim 16, which comprises the compound according to claim 4 as an active ingredient.

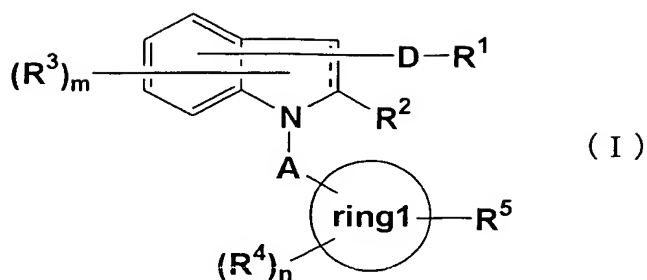
18. A DP receptor antagonist comprising the compound according to claim 1, 2-(1-(4-benzyloxybenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, or 2-(1-(4-phenylbenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, or a pharmaceutically acceptable salt thereof as an active ingredient.

19. A pharmaceutical composition comprising the compound according to claim 1 as an active ingredient.

20. The pharmaceutical composition according to claim 19, which is an agent for prevention and/or treatment of allergic disease, systemic mastocytosis, systemic mast cell activating disorder, anaphylaxis shock, airway contraction, urticaria, eczema, pimples, allergic bronchial pulmonary aspergillosis, sinusitis, migraine, nasal polypus, anaphylactic vasculitis, eosinophilia, contact dermatitis, diseases accompanied by itch, diseases which is generated secondarily as a result of behavior accompanied by itch, inflammation, chronic obstructive pulmonary diseases, ischemic reperfusion injury, cerebrovascular accident, autoimmune disease, cerebral lesion, hepatopathy, graft rejection, chronic articular rheumatism, pleuritis, osteoarthritis, Crohn's disease, ulcerative colitis, irritable bowel syndrome, sleep disorder or aggregation of platelets.

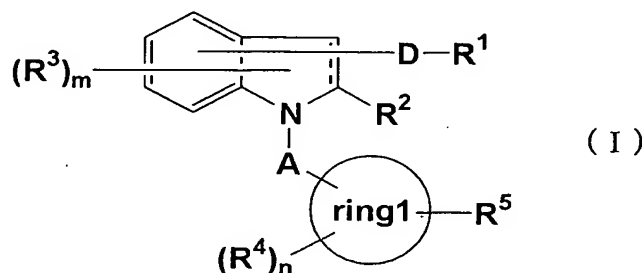
21. A medicament comprising a combination of the indole derivative compound according to claim 1, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof, and at least one or more agent(s) selected from DP antagonist, antihistaminic agent, suppressor for mediator liberation, inhibitor for thromboxane synthase, antagonist for thromboxane A2 receptor, antagonist for leukotriene receptor, steroid, stimulant for  $\alpha$ -adrenaline receptor, xanthine derivative, anticholinergic agent and/or suppressor for nitrogen monoxide synthase.

22. A method for antagonizing CRTH2 receptor, which comprises administering to a mammal an effective amount of the indole derivative compound represented by formula (I)



wherein all symbols have the same meanings as described in claim 1, 2-(1-(4-benzyloxybenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, 2-(1-(4-phenylbenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof.

23. Use of the indole derivative compound represented by formula (I)



wherein all symbols have the same meanings as described in claim 1, 2-(1-(4-benzyloxybenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, 2-(1-(4-phenylbenzoyl)-2-methyl-5-methoxyindol-3-yl)acetic acid methyl ester, a salt thereof, an N-oxide thereof, a solvate thereof or a prodrug thereof for the manufacture of a CRTH2 receptor antagonist.